CLAIMS:

1. A protease having two aspartate residues in a catalytically active structure, wherein a first aspartate residue resides in an X_1GX_2GD motif and a second aspartate residue resides in an $X_3X_4DX_5$ motif, wherein X_1, X_2, X_3 and X_5 are independently selected from Ala, Val, Leu, Met and Ile, and X_4 is an aromatic amino acid, and the motifs X_1GX_2GD and $X_3X_4DX_5$ reside in a transmembrane region.

2. The protease according to claim 1, characterized by having the sequence $PALX_6YX_7V$, wherein X_6 and X_7 independently have the same meaning as X_1 and preferably are Leu or Ile.

3. The protease according to any of claims 1 to 2, characterized by having one of the sequences SEQ ID Nos. 1 to 8 and 18, 19.

4. Nucleic acids coding for a protease according to at least one of claims 1 to 3, preferably having SEQ ID No. 9-17 or 20.

5. Inhibitors, characterized by inhibiting the expression or activity of the protease according to any of claims 1 to 3.

6. An antibody directed against proteases according to any of claims 1 to 3.

7. A method for the identification of inhibitors, characterized in that the activity of the proteases is measured according to any of claims 1 to 3 in the presence of potential inhibitors.

8. A medicament or diagnostic agent containing a protease according to any of claims 1 to 3, a nucleic acid according to claim 4, an inhibitor according to claim 5, and/or an antibody according to claim 6.

9. Use of the medicament or diagnostic agent according to claim 8 for the diagnosis or treatment of diseases which are causally related with the cleavage of the amyloid precursor protein, especially Alzheimer's disease.

10. Use of the medicament or diagnostic agent according to claim 8 for the diagnosis or treatment of diseases which are causally related with a disturbed degradation of hydrophobic signal peptides.

11. Use of the medicament or diagnostic agent according to claim 8 for the diagnosis or treatment of diseases which are causally related with the accumulation of unfolded proteins in the endoplasmic reticulum.

12. Use of the medicament according to claim 8 for influencing the presentation of hydrophobic peptides by histocompatibility complex molecules in conditions such as viral infection, cancer or rejection after transplantation.

13. A cell line, characterized by not expressing any protease according to at least one of claims 1 to 3 and/or not containing any nucleic acid according to claim 4.